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Identification of the generalized Weibull distribution in wind speed data by the Eigen-coordinates method

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Abstract

The real distributions of local wind speed obtained from random temporal series have been analyzed in the framework of the new Eigen-coordinates method (ECs), which helps to identify a true hypothesis with high level of authenticity. The season variations of the wind speed have been registered in Fjage (Jordan) and considered as initial data. It has been shown that histograms of the local wind speed were precisely described by the generalized Weibull model and the distribution model suggested by C. Tsallis should be rejected for present case. The possibilities and recommendations for the application of the ECs method to identify the theoretical curves needed for description of experimental data containing significant deviations are discussed. It has been shown that the ECs method could be used in these cases as a general approach and could be applied for analysis of temporal random series of different nature. PACS: 02.60.Ed., 02.60.Pn., 06.20.Dk., 07.05.Kf., 07.05.Rm. © 2002 Elsevier Science Ltd. All rights reserved.

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